recited in claim 1; and a diameter of each of the introduction holes is designed to pass the radicals only to the film deposition chamber, as recited in claim 5.

The Office Action asserts that the mesh electrode disclosed as part of the CVD system of Hara corresponds to the claimed lower plate. On the contrary, the mesh electrode disclosed in Hara is not connected to ground, but is "supplied with a variable voltage." See, for example, Hara, col. 7, lines 18-19. Because the lower plate of Hara's system is not connected to ground, it is not possible to introduce only the radicals through the introduction holes of the lower plate. To the contrary, because the mesh electrode of Hara is supplied with the variable voltage, it would not be possible for the mesh electrode of Hara to introduce the radicals only into the film deposition chamber. In fact, this feature is absent from Hara's disclosure.

The Office Action on page 3 acknowledges the deficiencies of Hara, that is, the Office Action acknowledges that "Hara does not teach that the lower plate (lower half of "ME") is connected to ground thereby allowing only radicals to pass." Further, the Office Action acknowledges that "Hara does not teach diameters of his introduction holes thereby allowing only radicals to pass." However, the office Action asserts that "Babayan teaches a capacitively coupled plasma apparatus (Figure 1)," where "both electrically conductive upper (26,28) and electrically conductive lower (22) electrodes as grounded ([0042]) thereby allowing only radicals to pass ([0039])." Applicants respectfully disagree.

In paragraph [0042] of Babayan, members 26 and 28 are perforated sheets. Member 22 is a pedestal. These members 22, 26 and 28 are grounded, but are not expressed as "electrode." Rather, in Fig. 1 and at paragraph [0042], Babayan discloses that the conductive upper electrode is the member 16, and the conductive lower electrode is the member 14.

Moreover, Babayan's perforated sheets 26 and 28 are multi-hole sheet members connected to the ground to supply gas to the electrodes 18 and 24 with an excellent distribution, i.e., make the gas flow uniformly down through the cavity (paragraph [0042]).

Therefore, the perforated sheets 26 and 28 plays no role in preventing passage of plasma, or the passing of only the radicals. That is, the electrically conductive upper electrodes (26, 28) and the electrically conductive lower electrode (22) as grounded perform different functions than that of the claimed lower plate.

As shown in Fig. 1 of Babayan, since the electric discharge section is formed between the members 14 and 16, and the members 26 and 28 are positioned at the upstream of the electric discharge section, it is not possible for the members 26 and 28 to have a function of allowing only neutral radicals generated in the discharge section to pass. Rather, gas distribution at the downstream is more uniform while there is a state of mixing electric charged particles and electrically neutral radicals at the upstream. Thus, the function of the electrically conducive upper electrodes (26, 28) as described in paragraphs [0042] and [0062] of Babayan is to make uniform a flow of gas toward the downstream.

Moreover, the electrically conductive lower electrode 22 has a function of supporting the substrate. Thus, it is clear that the electrode 22 is different in terms of structure and function as that of the claimed lower plate.

Furthermore, Hara does not disclose or suggest that a cleaning gas feeder that is provided to a plasma generator...wherein a cleaning gas is introduced through the cleaning gas feeder to produce plasma in the plasma generator and generate radicals, as recited in independent claim 1, and similarly recited in independent claim 5.

The Office Action asserts that Hara discloses a cleaning step at col. 13, lines 9-20, which discloses or suggests the above noted features of claim 1. Applicants respectfully disagree.

Hara discloses at col. 13, lines 9-20 that plasma hydrogenation is performed on a polycrystalline Si thin film 4 by introducing it to the hydrogenating chamber C_5 while maintaining its surface clean after obtaining the polycrystalline Si thin film 4 by melting-recrystallization of the a-Si:H thin film 3 in the laser annealing chamber C_3.

Nowhere does Hara disclose or suggest a cleaning gas feeder is provided to a plasma generator...wherein a cleaning gas is introduced through said cleaning gas feeder. In fact, as shown in Fig. 3, the C_1 and the C_2 chemical vapor deposition (CVD) chambers do not show a cleaning gas feeder. Thus, Hara's CVD chambers does not perform introducing a cleaning gas through the cleaning gas feeder to produce plasma in the plasma generator and generate radicals, as recited in independent claim 1, and similarly recited in independent claim 5.

Moreover, claims 1 and 5 recite the radicals are introduced...to the film deposition chamber to strike the substrate and thereby clean the substrate and further the film is deposited on the substrate within the same chamber, as the substrate is not moved. Nowhere does Hara disclose or suggest that the substrate is cleaned and a film is deposited on the substrate within the same chamber.

As discussed above, the Hara's CVD chambers do not disclose or suggest a cleaning gas feeder, and thus is not capable of introducing clean gas into the CVD chambers. Further, as mentioned above, Hara discloses at col. 13, lines 9-20 that plasma hydrogenation is performed on a polycrystalline Si thin film 4 by introducing it to the hydrogenating chamber C_5 while maintaining its surface clean...(emphasis added). This passage indicates that the hydrogenating chamber does not maintain the wafer surface clean, but rather, this is done elsewhere. In fact, Hara discloses a pre-cleaned glass wafer 1 that has been previously ultrasonically cleaned (See column 7, line 55, column 8, lines 48-58, column 13, lines 10-20). That is, Hara discloses that the pre-cleaned glass wafer 1 is introduced, rather than having a CVD system with a cleaning gas feeder to clean the substrate.

Thus, Hara does not disclose or suggest... clean the substrate ...film is deposited on the substrate within the same chamber, as recited in claims 1 and 5.

Therefore, independent claims 1 and 5 define patentable subject matter. Claims 2 and 6 dependent from the respective independent claims, and therefore also define patentable

subject matter. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.

II. Conclusion

In view of the foregoing amendments and remarks, this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 2, 5 and 6 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

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Attachment:
Petition for Extension of Time

Date: September 20, 2004

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